

Shell Exploration & Production

# *Partnership - The Path to CCS Success*

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# Disclaimer Statement

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## **Cautionary Note to US Investors:**

The United States Securities and Exchange Commission ('SEC') permits oil and gas companies, in their filings with the SEC, to disclose only proved reserves that a company has demonstrated by actual production or conclusive formation tests to be economically and legally producible under existing economic and operating conditions.

# A Time for Action

- World energy demand forecast to double by 2050
- Hydrocarbons will continue to be the primary energy source
- CO<sub>2</sub> emissions will increase
- Technology and efficiency mix required to reduce CO<sub>2</sub> impact



# Industry Role

**Collaboration**

**Action**

**Voice**

**Technology      Experience**  
**Expertise**





# Government Role

- Provide enabling policy framework
- Develop incentives to deploy solutions
- Ensure stable regulatory regime
- Encourage long term sustainable solutions

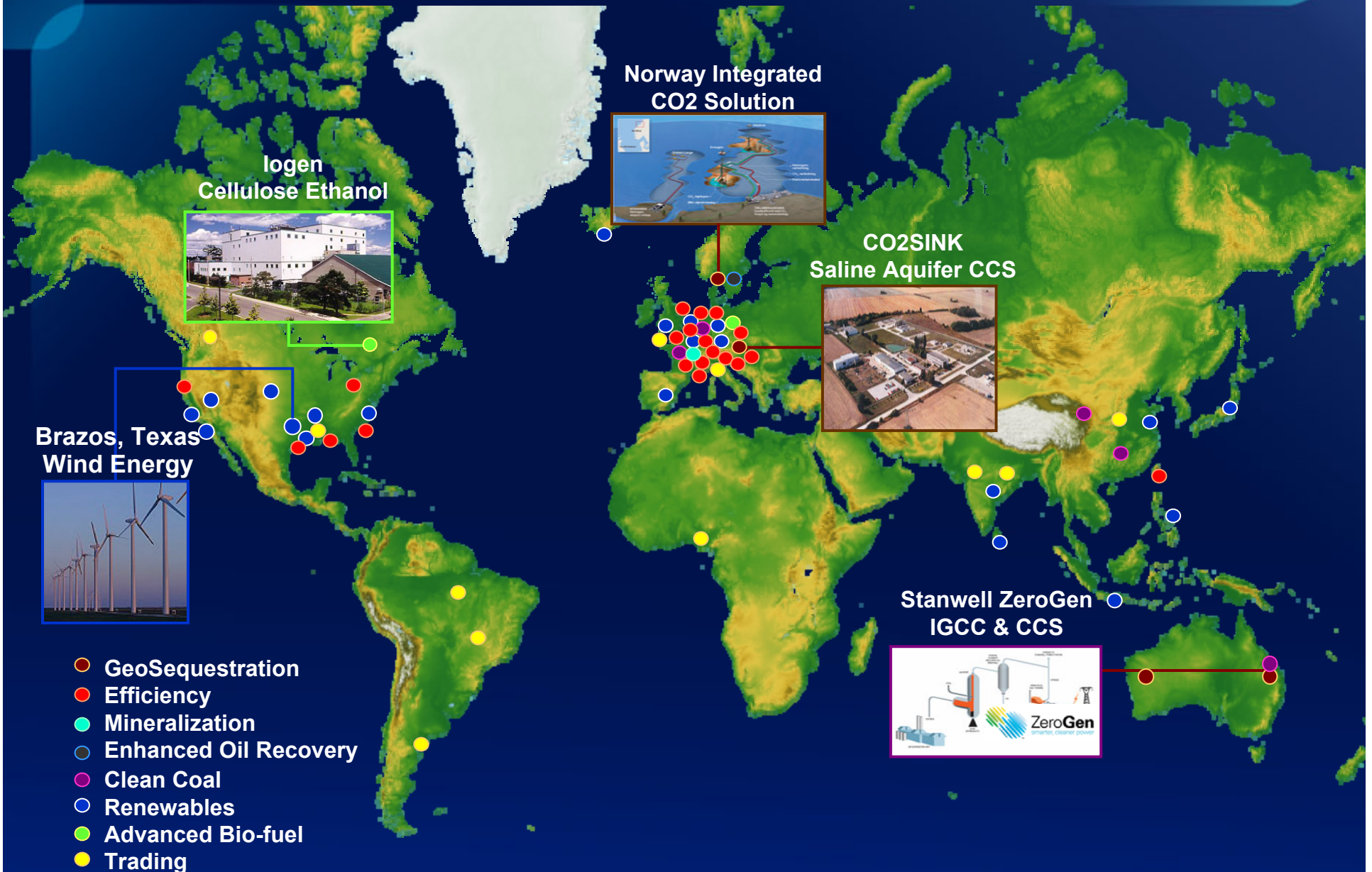


# Other Key Stakeholders Role

- Engage and educate the public on CO2 issues
- Secure community commitment to pursuing solutions
- Support R&D and implementation of CCS technologies



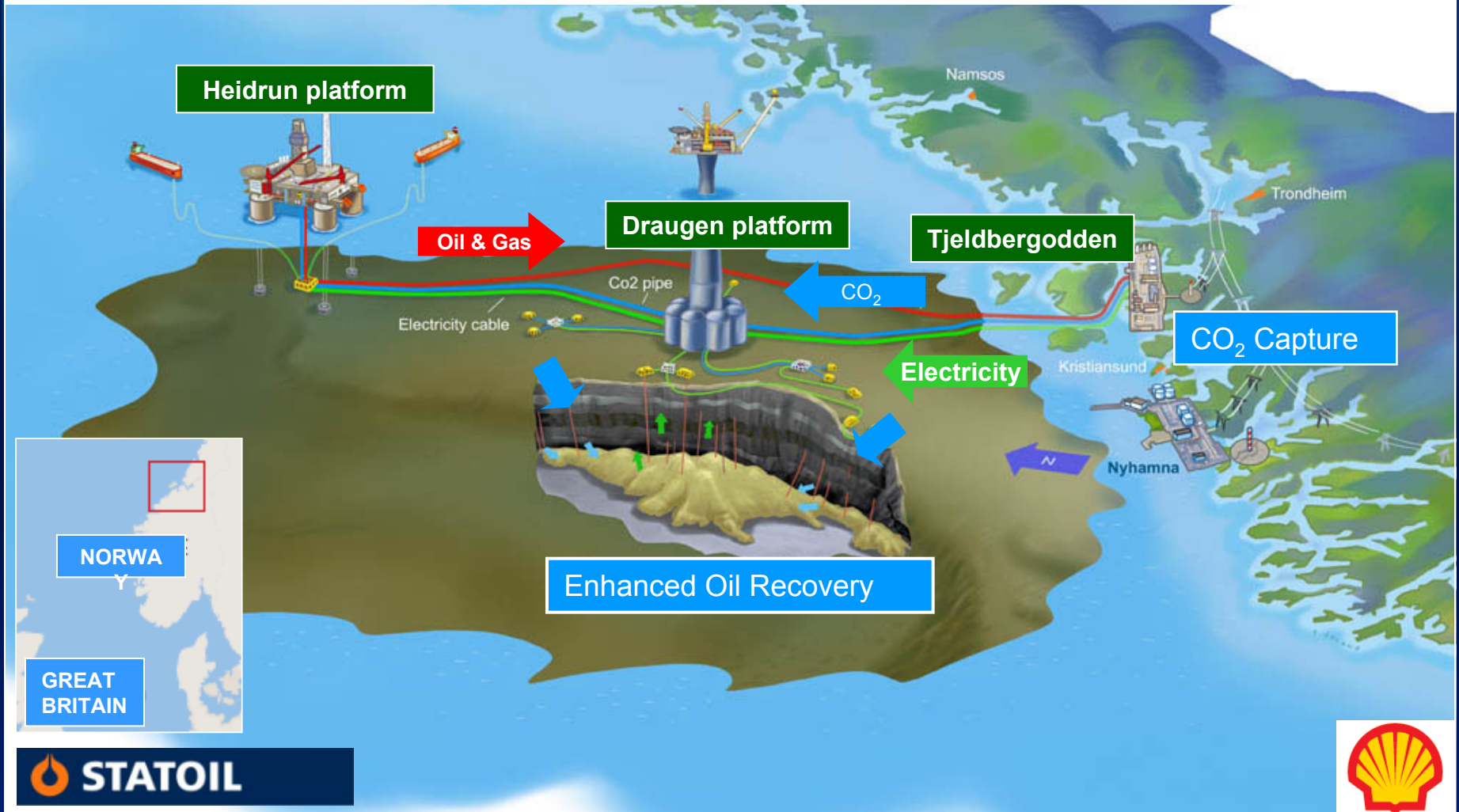
# Shell Focus on CO<sub>2</sub> Management





# Ongoing CCS Projects: Norway

# Halten CO2 Capture & EOR Project

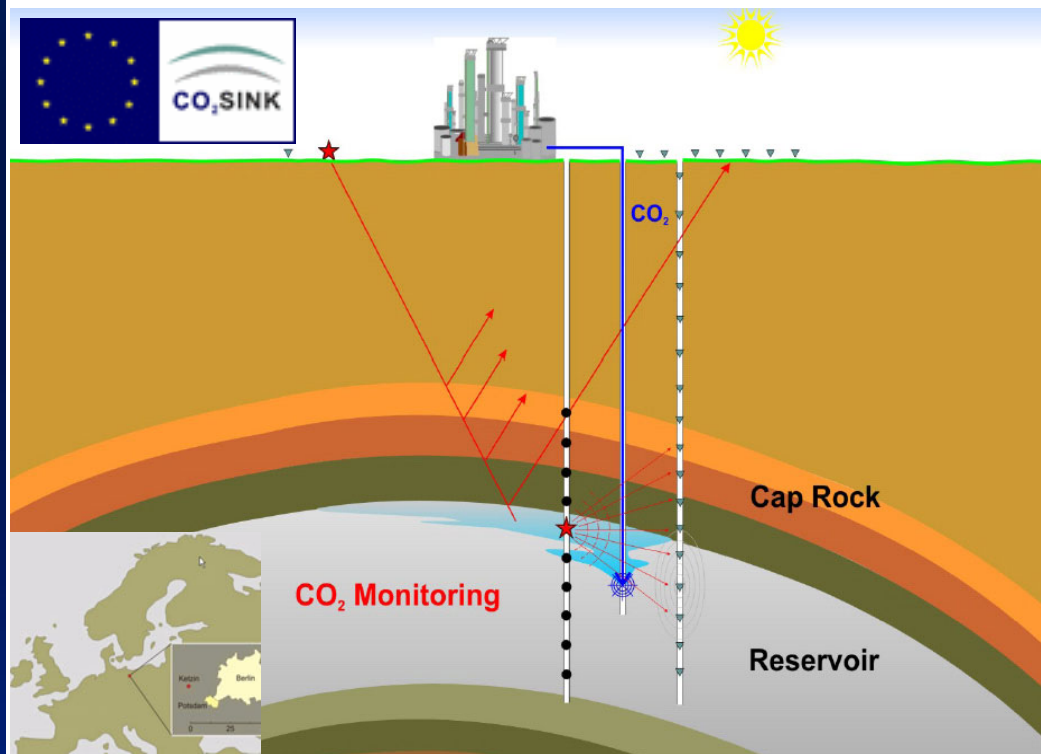




# Ongoing CCS Projects: Germany

- Sequestration in a saline aquifer
- Building confidence in Geo-Sequestration

## CO2SINK – GFZ lead consortium



## Injection site, Ketzin, Germany



# Ongoing CCS Projects: Australia

- World's 1st CO<sub>2</sub> capture & storage coal power project
- Utilizes Shell's coal gasification and CCS technologies
- Feasibility & Environmental Impact Assessment study initiated

Demonstration planned to commence early next decade



**Stanwell Power Plant**  
**Coal Gasification – Carbon Capture**



**200km CO<sub>2</sub> pipeline**



**CO<sub>2</sub> storage in  
North Dennison**



**ZeroGen**



# Other Projects: The Netherlands

## CO<sub>2</sub> Demonstration Project:

### Rotterdam

PERNIS REFINERY



Hydrogen

CO<sub>2</sub>

FUEL CELL BUS



DIRECT CO<sub>2</sub> SALES



MINERALIZATION



GEOLOGIC STORAGE





# CO2 friendly energies

- Bio-fuels
- Wind Energy
- Solar Energy
- Hydrogen
- Clean Coal
- Gas to Liquids



Wind farm



Clean Coal plant



Bio-fuels JV  
Partners



Hydrogen



Solar: New Generation CIS

# Conclusion

- Effective partnerships are critical
- Continue R&D, but proven technologies are available now
- Continue demonstrating there are solutions to the CO<sub>2</sub> issue
- CO<sub>2</sub> policy framework requires a sense of urgency
- Engage and educate communities about CO<sub>2</sub> solutions

**“A ton of CO<sub>2</sub> properly stored is as good as a ton of CO<sub>2</sub> avoided”**

